

**§ 230.114 Wheel centers.**

(a) *Filling blocks and shims.* Driving and trailing wheel centers with divided rims shall be properly fitted with iron or steel filling blocks before the tires are applied, and such filling blocks shall be properly maintained. When shims are inserted between the tire and the wheel center, not more than two thicknesses of shims may be used, one of which must extend entirely around the wheel. The shim which extends entirely around the wheel may be in three or four pieces, providing they do not lap.

(b) *Wheel center condemning defects.* Wheel centers with any of the following defects shall be removed from service immediately and repaired:

- (1) Wheels centers loose on axle;
- (2) Broken or defective tire fastenings;
- (3) Broken or cracked hubs, plates, bolts or spokes, except as provided in paragraph (b)(4) of this section; or
- (4) Driving or trailing wheel center with three adjacent spokes or 25 percent or more of the spokes in the wheel broken.

(c) *Wheel center repairs.* Wheel centers may be repaired by welding or brazing provided that the defect can properly be so repaired and, following the repair, the crankpin and axle shall remain tight in the wheel. Banding of the hub is permitted.

(d) *Counterbalance maintenance.* Wheel counterbalances shall be maintained in a safe and suitable condition for service.

## STEAM LOCOMOTIVE TANKS

**§ 230.115 Feed water tanks.**

(a) *General provisions.* Tanks shall be maintained free from leaks, and in safe and suitable condition for service. Suitable screens must be provided for tank wells or tank hose and shall be maintained in a manner that allows the unobstructed flow of water. Feed water tanks shall be equipped with a device that permits the measurement of the quantity of water in the tender feed water tank from the cab or tender deck of the steam locomotive. Such device shall be properly maintained.

(b) *Inspection frequency.* As often as conditions warrant but not less fre-

quently than every 92 service days, the interior of the tank shall be inspected, and cleaned if necessary.

(c) *Top of tender.* Top of tender behind fuel space shall be kept clean, and means provided to carry off excess water. Suitable covers shall be provided for filling holes.

**§ 230.116 Oil tanks.**

The oil tanks on oil burning steam locomotives shall be maintained free from leaks. The oil supply pipe shall be equipped with a safety cut-off device that:

- (a) Is located adjacent to the fuel supply tank or in another safe location;
- (b) Closes automatically when tripped and that can be reset without hazard; and
- (c) Can be hand operated from clearly marked locations, one inside the cab and one accessible from the ground on each exterior side of the steam locomotive.

## APPENDIX A TO PART 230—INSPECTION REQUIREMENTS

The lists in this appendix are intended as guidance only. Adherence to this list does not relieve the steam locomotive owner and/or operator of responsibility for either: (1) Completing the inspection and maintenance requirements described in this part; or (2) ensuring that the steam locomotive, tender and its parts and appurtenances are safe and suitable for service.

*Daily Inspection Requirements; § 230.13*

1. Observance of lifting pressure of the lowest safety valve.
2. Testing of water glasses and gauge cocks.\*
3. Inspection of tubular water glass shields.
4. Inspection of all cab lamps.\*
5. Inspection of boiler feedwater delivery systems.\*
6. Inspection of lagging for indication of leaks.
7. Inspection for leaks obstructing vision of engine crew.
8. Observance of compressor(s) and governor to ascertain proper operation.\*
9. Inspection of brake and signal equipment.\*
10. Inspection of brake cylinders for piston travel.
11. Inspection of foundation brake gear.
12. Inspection of sanders.\*
13. Inspection of draw gear and chafing irons.

**Pt. 230, App. A**

14. Inspection of draft gear.
15. Inspection of crossheads and guides.
16. Inspection of piston rods and fasteners.
17. Inspection of main, side, and valve motion rods.
18. Inspection of headlights and classification lamps.\*
19. Inspection of running gear.
20. Inspection of tender frames and tanks.
21. Inspection of tender trucks for amount of side bearing clearance.

NOTE: All items marked (\*) should be checked at the beginning of each day the locomotive is used.

*31 Service Day Inspection Requirements; § 230.14*

1. Washing of boiler.
2. Cleaning and inspection of water glass valves and gauge cocks.
3. Cleaning, washing and inspection of arch tubes, water bar tubes, circulators and siphons.
4. Removal and inspection of all washout and water tube plugs.
5. Testing of all staybolts.
6. Removal, cleaning and inspection of fusible plugs (if any).

*92 Service Day Inspection Requirements; § 230.15*

1. Removal and testing of all air and steam gauges.
2. Cleaning of steam gauge siphon pipe.
3. Renewal of tubular water glasses.
4. Testing and adjusting of safety relief valves.

**49 CFR Ch. II (10–1–10 Edition)**

5. Testing of main reservoir and brake cylinder leakage.
6. Entering and inspection of tender tank interior.

*Annual Inspection Requirements; § 230.16*

1. Testing of thickness of arch and water bar tubes (arch brick to be removed)
2. Hydrostatic testing of boiler.
3. Testing of all staybolts.
4. Interior inspection of boiler.
5. Thickness verification of dry pipes.
6. Smoke box inspection.
7. Main reservoir hammer or UT testing and hydrostatic testing (for non-welded and drilled main reservoirs)
8. Removal and inspection of steam locomotive drawbar(s) and pins (NDE testing other than merely visual)
9. Inspection of longitudinal lap joint boiler seams.

*5 Year Inspection Requirements; § 230.16*

1. Inspection of flexible staybolt caps and sleeves.

*1472 Service Day Inspection Requirements; § 230.17*

1. Removal of boiler flues (as necessary) and cleaning of boiler interior.
2. Removal of jacket and lagging and inspection of boiler interior and exterior.
3. Hydrostatic testing of boiler.
4. Thickness verification (boiler survey) and recomputation and update of steam locomotive specification card, (FRA Form No. 4).